

*Arguments/Remarks*

The applicant has canceled claims 1-5, 10, and 12-15, and added new claims 16-35. Claims 16-35 are presented for examination.

All of the new claims are supported by the application as originally filed and no new matter is added. In this respect, the examiner's attention is drawn specifically to the provisional application filed on March 9, 2000, which discloses in detail all of the features set forth in the amended claims.

The present claims are directed to a communication system that uses variable time-frequency tiles to adapt the transmission spectrum to the available coherent bandwidth of each link in a communications medium. As further detailed in the dependent claims above, within this encoding system, data rate, M-ary word size, and the like may also be adapted to the information capacity of the coherent channels created using the (also variable) time-frequency tiles. Thus, in one aspect the system may simultaneously employ the most beneficial attributes of OFDM, DSPN spread spectrum, high-efficiency M-ary modulation, sub-band FEC encoding, and interleaving.

This claimed invention sharply contrasts with the cellular communications systems described in the art of record. While some of these prior art systems describe themselves as adaptive, they all employ a fixed sub-channel (carrier) allocation scheme that cannot achieve the advantages of the present invention because they do not vary the coherent time-frequency intervals in accordance with channel conditions. By way of example and not of limitation, the applicant notes the following distinguishing features each of which apply to at least one of the independent or dependent claims above:

- None of the cited art can communicate without the use of training signals, pilot tones, or other similar signal acquisition overhead;
- None of the cited art can flexibly re-allocate spectrum according to a desired phase coherence across a channel.
- None of the cited art provides transmission of a data signal with a reduced power spectral density that is virtually indistinguishable from Gaussian noise.

Because none of the cited art teaches the presently claimed invention, and because the cited art does not either alone or in combination suggest any wireless communications

system capable of using adaptive time-frequency tiles in the manner claimed, the new claims are believed to be in a condition for allowance.

*Conclusion*

For the foregoing reasons, all of the pending claims are believed to be patentable over the art of record, and a Notice of Allowance is respectfully requested for same. Allowance is earnestly solicited, and the Examiner is invited to contact the undersigned (781) 453-9993 if it will expedite prosecution of this application.

The applicant hereby authorizes the Patent Office to charge any deficiencies or credit any overpayments associated with this filing to Deposit Account No. 50-4262.

Respectfully submitted,  
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